DOCUMENT RESUME

ED 111 148 EC 073 522

AUTHOR	Dalton, Robin; Lynch, William W.
TITLE	The Effects of an "Episodic" Style of Teacher Questioning on EMR Pupils' Lesson Performance and Learning of Orally Presented Material. Final Report 29.31.
INSTITUTION	Indiana Univ., Bloomington. Center for Innovation in Teaching the Handicapped.
SPONS AGENCY	Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
REPORT NO	CITH-FR-29.31
PUB DATE	Jun 74
GRANT	OEG-9-242178-4149-032
NOTE	61p.
EDRS PRICE	MF-$0.76 HC-$3.32 Plus Postage
DESCRIPTORS	Cognitive Processes; *Educable Mentally Handicapped; Exceptional Child Research; Interaction Process Analysis; Intermediate Grades; *Learning Characteristics; *Memory; Mentally Handicapped; Motivation; *Questioning Techniques; Student Teacher Relationship; *Teaching Methods

ABSTRACT

Compared was the relative effectiveness of two teacher questioning styles on the motivation and learning of eight intermediate educable mentally retarded pupils. Interactive process data and pupil achievement on a recall posttest were examined for two different types of lessons: one utilizing "episodic" questions (that encouraged the child to relate his personal experiences to lesson content) and the other utilizing "semantic" questions (which emphasized only the recall and processing of factual material). Results revealed differences in teacher behavior, pupil responses, pupil language production, teacher-pupil interaction, and pupil recall. For example, greater self-initiated pupil response, individual pupil verbal output, and teacher probing of pupil responses occurred during episodic teaching; but teachers provided more positive feedback and students were more able to recall new information during semantic teaching. (LH)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED111148

INTERACTIVE TEACHING SKILLS

THE EFFECTS OF AN "EPISODIC" STYLE OF TEACHER QUESTIONING ON EMR PUPILS' LESSON PERFORMANCE AND LEARNING OF ORALLY PRESENTED MATERIAL

ROBIN DALTON AND WILLIAM W. LYNCH

FINAL REPORT 29.31

EC073522

cith CENTER FOR INNOVATION IN TEACHING THE HANDICAPPED
School of Education Indiana University Bloomington

THE EFFECTS OF AN "EPISODIC" STYLE OF TEACHER QUESTIONING ON EMR PUPILS' LESSON PERFORMANCE AND LEARNING OF ORALLY PRESENTED MATERIAL[1]

Robin Dalton and William W. Lynch

June, 1974

Final Report 29.31

Center for Innovation in Teaching the Handicapped

Indiana University

[1]This research was supported by grant #OEG 9-242178-4149-032 from the U. S. Office of Education, Bureau of Education for the Handicapped to the Center for Innovation in Teaching the Handicapped. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Acknowledgments

William Frazer performed a large portion of the statistical analysis in this study as well as assisting in the gathering of the data. Also, the study could not have been completed without the competent assistance of Lee Epstein, Patricia Godwin, Wallace Goya, and Judy Lankford.

The Effects of an "Episodic" Style of Teacher Questioning on EMR Pupils' Lesson Performance and Learning of Orally Presented Material

Robin Dalton and William W. Lynch
Center for Innovation in Teaching the Handicapped
Indiana University

Abstract

The effects of teacher questions that encourage children to relate the content of new lesson material to their own personal experiences and viewpoints ("episodic" questions) were compared experimentally with the effects of questions restricted to lesson content alone ("semantic" questions). Eight teachers of intermediate EMR classes each taught two lessons to eight of their pupils in a design that counterbalanced lesson content and order of questioning style. Lesson content consisted of two stories based on historical information read aloud to the group with questions interspersed between sections of the story. Dependent measures included process data on teacher behavior and pupil responses recorded during the lesson and outcome data on a recall posttest for each lesson. The results revealed differences between experimental conditions in teacher behavior, pupil responses, pupil language production, teacher-pupil interaction, and pupil recall. The findings suggest differential consequences of questioning styles on pupil motivation and learning that have implications for teacher education.

The Effects of an "Episodic" Style of Teacher Questioning on EMR Pupils' Lesson Performance and Learning of Orally Presented Material

Robin Dalton and William W. Lynch
Center for Innovation in Teaching the Handicapped
Indiana University

Introduction

This is a report of an experiment carried out in intermediate classes for educable mentally retarded children to examine the effects of a "child-centered" style of teacher questioning (here called "episodic" questioning) on pupil performance and achievement in an orally presented lesson. The study is one in a series of experiments carried out at this Center under the general project title "The Development of Cognitive Demand Skills of Teachers of the Handicapped." The goal of these studies is to identify cognitively oriented interactive skills of teachers that have promise for enhancing the classroom success of mildly handicapped children. In designing this series of experiments, the assumption has been made that effective interactive skill patterns of teachers are task and content specific. Thus, for example, a good interactive strategy for helping children assimilate new information (as in the present study) is necessarily quite different from the strategies used in teaching a skill (e.g. word identification skills in reading) or problem solving (e.g. the solution of novel mathematical problems).

In arriving at the selection of variables and design for an experiment, two concurrent preliminary procedures are carried out: (a) extensive observation of teachers as they work with children on the kind of classroom task being considered; and (b) systematic review of the literature on human learning and cognition, with special emphasis on language factors, acquisition behaviors (e.g. "mathemagenics"), concept learning and utilization, memory, and problem solving. Variables are finally selected that represent an interesting and promising convergence of the more obvious parameters of the daily classroom behavior of teachers and selected variables from the research literature that seem pertinent. In each study, it is hoped that the data obtained will provide some preliminary empirical basis for developing training materials for teachers.

In the present study, a strategy for encouraging children to relate their own personal experiences and perspectives to new lesson content is examined.

Background for the Study

Teachers' motivational techniques are an important, but largely unstudied variable in the research on the relationship between teacher behavior and student achievement (Rosenshine, 1971). A teacher's neglect of the motivational aspects of teaching can be especially tragic for low ability children because they are likely to have generalized a low self-concept of their academic performance to every classroom task, regardless of its difficulty. This situation leads the child to a hopelessness, inertia, or even unwillingness concerning most classroom activities. When a child does not actively participate (i.e. when his verbal participation in class is low), the teacher is in a poorer position to judge his

abilities and, consequently, is in a poorer position to adapt classroom communication or instructional tasks to the child. If teachers can be helped to improve their motivational techniques so as to enhance a child's self-concept, then increased verbal production by the child and improved teacher-child interaction should result.

One didactic tool that is universally used by teachers is the question. It is helpful in ascertaining the level of learning, in providing repetition of important material to be learned, in maintaining the attention of a class, and in teaching the child to deal with information in new ways. Classroom questions differ from questions used in non-academic realms because the teacher is presumed to know the answer before asking the question. This state of affairs is pa ticularly threatening to an academically low-functioning child since specific information is usually expected from him. If he is unable to respond appropriately, the teacher is left with two options: s/he may ignore the response, which may falsely encourage the child to believe he was correct; or s/he may correct the response. The correction although necessary, may be aversive enough to discourage continued academic involvement by the child.

Borg, Kelley, Langer and Gall (1970) have suggested that the level of cognitive activity in regular classrooms, represented by the questions asked, is too low. They have assumed that high-order questions, e.g. problem solving or inference questions, should be emphasized, and that teachers should be trained to utilize these question types. Unfortunately, we lack the evidence to support the assumption that training teachers to ask higher order questions will result in higher order

thinking or even better recall by students. One could speculate that a classroom which lacked high- or low-level questions would not be adequate because a variety is necessary to sustain an interest for the broadest range of student abilities.

Lynch and Ames (1972), in a study of instructional interactions between special class teachers and EMR children, found that an average of 70 percent of the teacher's questions asked during instruction in basic academic subjects required only a low level of cognitive response (simple observing, repeating, rote memory, etc.). The teacher's judgment of a child's ability did not seem to affect the frequency or cognitive level of questions directed to that child. This predominance of cognitively lower level questions might be interpreted as a reflection of the teacher's effort to keep the level of instructional discourse as easy as possible for EMR children. Or it might be hypothesized that low-level questions are most common because they have been most frequently reinforced with correct answers. These explanations assume that low-level questions are easiest for children to answer, but there may be no basis for this. Memory questions, for example, can be extraordinarily difficult, while questions that call for an inference, an evaluative judgment, or an imaginative response can be much easier, depending upon the child's experiential background for the question and the context.

The cognitive level of questions may not, in fact, be the most relevant factor in determining the quantity and quality of responses made by low ability children. A guiding hypothesis of the present study is that a teacher can easily learn a technique in which, through questions, the

substantive content of a lesson (new factual information about history) can be related to the personal experiences of the children being taught. It is further hypothesized that when the content is thus related to personal experiences, the quality of participation by EMR children improves. This hypothesis was inspired by Tulving (1972), who used the term "episodic" to refer to a dimension of memory which involves an autobiographical component. Tulving hypothesized that "episodic" memory has quite different properties from "semantic" memory (memory for information that has been presented and encoded verbally).

Teacher questions which serve the function of relating the child's own experience to the content of a lesson that has been presented verbally are here called episodic questions. Teacher questions which demand only the recall and processing of lesson content are denoted as semantic questions. The meanings of "episodic" and "semantic" in this study are restricted to the operations used, and there was no intention of representing them as fulfilling the meanings originally intended by Tulving. Both episodic and semantic questions may involve either higher or lower order thinking by the children. Examples of both types of thinking in response to semantic questions may be found in such accounts of instructional questions as those by Hunkins (1972) or Taba & Elzey (1964). Similarly, episodic questions may also reflect these levels: e.g. a low-level question involving the content we used in this study might be "which utensil do you use to eat meat?"; a high level question (conceptual) might be "who in your neighborhood is like the watchman in colonial times?"

An experiment was designed in which a sample of teachers of special

classes for intermediate-grade level EMR pupils each taught two lessons. In one lesson, the teachers were instructed to teach for content mastery of the lesson and used a predominance of semantic (largely recall) questions. In the other lesson, the teachers were instructed to teach in such a way as to maximize pupils' opportunities to relate lesson content to their own experience. In the latter condition, the teachers used a large proportion of episodic questions. (See pp. 11-12 for further definitions of "semantic" and "episodic").

The lessons were both high-interest, low-vocabulary accounts of historical material. In examining the effects of the two different lesson orientations, both interactive process data and pupil achievement on an outcome test were examined. Considerable emphasis was placed on the process data because of the motivational orientation of the study. Motivation and language production are critically important to most academic performance. In the case of mildly retarded children, any teaching tactic that can motivate and increase successful language production should be especially advantageous.

Four general hypotheses were addressed in the study. The first concerned the efficacy of the episodic questioning technique on the criterion of the children's verbal production. It was proposed that the use of episodic questions during a lesson would produce more language than the use of predominately semantic questions.

The second general hypothesis suggested that episodic interaction should be more ego involving. Rosenshine (1971) has pointed out that few studies have investigated the role of ego involvement in teaching-learning situations. Episodic questions, because of their autobiographical

emphasis, appear to have the quality of ego involvement. They should create more opportunities for correct responding and this, in turn, should be reflected in the teacher's reinforcement behavior.

Third, it was proposed that a technique that assists academic or social interaction between teacher and child (especially the more reticent, low ability child) should ultimately improve the conditions that enable the teacher to understand the child's classroom abilities and self-concept. Among the consequences of such improved conditions in the episodic condition, it was anticipated that the teachers would probe pupil responses more often than in the semantic condition.

The last general hypothesis held that children in the episodic condition should do as well on a posttest covering lesson content as they would in the semantic condition. There is scant basis for a directional hypothesis pertaining to differential learning under the two conditions. It would appear that under the semantic condition there should be more explicit coverage of specific information contained in the lesson and hence greater opportunity to learn that information. On the other hand, under the episodic condition, while more time might be spent on recounting personal experiences related to lesson content (hence taking time away from explicit review of lesson content), two advantages might accrue. In the first place, as hypothesized, the episodic condition might be more motivating, hence bringing about greater attention to lesson information and improved learning. Second, the introduction of familiar autobiographical information into the lesson could conceivably provide the basis for richer associational links that might facilitate memory of the lesson material itself. On balance, it was hypothesized

that, at least, achievement outcomes would not suffer when much of the lesson content was devoted to personal information instead of adhering strictly to lesson content.

Method

Teacher and Student Selection Characteristics

The research was conducted in eight elementary inner-city schools in a large city independent public school system during the latter half of the Spring semester, 1973. The 64 children who took part in the lessons were all in intermediate classes for "educable mentally retarded" pupils (ages 10-13). The classes were approximately half white and half black. The mean age of the group was 11 years and 6 months and the mean IQ was 72, as determined by the individually administered WISC or Binet. At a planning session, the teachers of eight classes were instructed to select their eight middle-ability children, perhaps their middle reading group. This was done to insure that the children selected for the lessons did not have such marked ability patterns that they might affect the teacher's expectancies and create disturbed patterns of interaction. (This might occur with an emotionally disturbed child whose academic ability might not be low or with an organically impaired child whose ability patterns are better understood to be extremely low). As a result, it was anticipated that differences in a teacher's behavior toward particular children in the group might reflect her/his expectancies for that child.

The eight teachers, all in their first or second year of teaching, were randomly chosen from a pool of teachers who expressed an interest in becoming more skilled in cognitive interaction techniques designed for EMR classrooms. Two pilot teachers (experienced teachers of intermediate EMRs) from an alternate location were used to pretest the

materials and procedures.

Procedure

Teachers read one of two different stories ("Colonial Times" and "Mayflower") to the same group of eight children on two separate days. At each session half of these teachers had been instructed to ask episodic questions and half to ask semantic questions during the story reading. Then on the second day, the teachers asked the alternate type. During each story reading, the teacher was directed on an instruction sheet to ask only one type of question after each third of the story. The story was divided with the written words "Insert Questions Here," printed after each third of the story. It was hoped that question-asking periods spaced through the story would facilitate recall and lessen the fatigue of the children during the lesson period. Reading each section took approximately five minutes. Questioning periods varied among teachers and between the sessions in which the two different questioning strategies were used.

The lessons were taught in the teachers' own classrooms. The eight children were positioned in the same manner as they were accustomed to for reading-group instruction. Typically, they were either seated around one large table, were seated individually in a circle or in semicircle. Each lesson was observed by four observers and was both videotaped and stereo-tape recorded. Children were allowed to touch the equipment and ask questions about its operation before beginning the lesson. The camera equipment and observers seemed to be relatively unobtrusive. Transcriptions were made from the stereotapes to use in coding relevant student and

teacher behavior. The videotapes allowed the pinpointing of nonverbal student-initiated responding as well as identification of voices on the stereo-tapes. After completion of each lesson, each child was taken out of the room and given a 24-item test on the story content by one of the investigators. This test was the same regardless of the questioning technique used in the lesson. Children were not told that they would be tested on either day, although they might have guessed that the second session would probably be identical with the first.

Posttest

Each 24-item posttest was a sampling of the content in each story (Appendix C). The pilot teachers were asked to verify the appropriateness and completeness of the posttest as a measure of the content of the lessons. This procedure was intended to gauge the content validity of the instrument. KR20 reliability coefficients for the two stories were .84 and .80. Items were free-response questions requiring short answers. They were constructed such that half of the items were repetitions, the question stem using the same language as the lesson text; the other half paraphrased the lesson language (Anderson, 1972). This was to enhance testing the children's comprehension of the material. All were short-answer response items, scored right or wrong. Each child had two scores, one for each posttest taken on consecutive days. The order of presentation of the story and the type of questions asked were balanced across days (see Fig. 1).

Each child served as his/her own control since one type of question was used on day one and the other type on day two. Some children heard

DAY 1

Question-Type

STORY	EPISODIC	SEMANTIC
Mayflower	2	2
Colonial Times	2	2

DAY 2

Question-Type

STORY	SEMANTIC	EPISODIC
Colonial Times	2	2
Mayflower	2	2

Figure 1. Design of the Experiment
(Number of Teachers in each Condition)

the "Mayflower" story first and some heard the "Colonial Times" story first. Subsequent analysis of variance indicated that the order of the stories did not affect performance on the posttest. Likewise, the analysis revealed no significant effect of the order in which groups received the semantic or episodic treatment. In summary, neither order of the stories or of the questioning types was significant.

Non-Lesson Control Group

To determine how much children who simply heard the story remembered on the posttest, two classes, chosen to serve as extra controls, were selected using the same criteria that were formulated for both teachers and students serving in the treatment conditions. These control teachers read the stories on two successive days to the eight selected children without asking any questions of the children during or following the lesson. Teachers were instructed not to comment about the content. After hearing the story the children were taken individually from the classroom for the posttest. This procedure was followed again on the second day with the other story.

Materials

The lesson material consisted of two narratives approximately 1,300 words in length (Appendix A). The titles of the stories were "Colonial Times" and "If You Sailed on the Mayflower," both involving related social studies content and both probably more interesting than typical text-type material. This historical period had not been covered previously in any of the eight classrooms used. Every effort was made to verify that the content was important and typical for the children by

determining that the teachers reacted positively to it and believed that children would benefit from having been exposed to the content.

Instructions to the teacher were typewritten and double-spaced on one page (Appendix B). These included a sample statement of the instructional objective for the lesson, with the method being specified. Procedural rules such as the inadmissability of visual clues, asking the children to introduce themselves, giving the purpose of the visitors in the room, and finally, specifying the type of questions allowed in each session were included. Sample questions were listed for the episodic condition, but not for the semantic condition (since it was thought that teachers used these types of questions daily). In addition, teachers were told at the planning session that the child's cognitive abilities and interactions were being studied and that they would be given a recall test following each experimental session. This was done to avert concern over the teacher's own performance.

Teachers were also given a ranking sheet designed to obtain teacher rankings of all eight children on their "overall ability." This was administered after lesson one.

Results

Teaching Behavior

Were there differences in teaching behavior between the semantic and episodic lessons to indicate that the teachers were, in fact, responsive to the experimental instructions? Typescripts of the lessons were coded using a simple category system for discriminating semantic and episodic questions and pupil responses.* A "question" was defined as any teacher utterance that solicited a substantive response from the group or an individual child during a lesson. Teacher utterances that had to do with procedures, discipline, clarification of what a child had said, or the teacher's reaction to antecedent child responses were not included (although teacher feedback was considered in other analyses). A semantic question was defined as any teacher solicitation that called upon the child to reproduce some part of the story that had just been read. Semantic questions ranged in specificity from very general questions ("Now Johnny, what was that section about?") to questions that called for literal recall of the material ("What was the name of the Indian who came to help the people?"). Semantic questions also ranged in cognitive level from simple recall questions to inference or problem-solving questions that required respondents to relate two or more items of information recalled from the story ("The story said over half of the people died in the first winter. Earlier we heard exactly how many came over on the Mayflower, so about how many do you suppose died?").

*Intercoder agreement was 98 percent.

Episodic questions constituted a somewhat disjunctive class of questions that had the very general characteristic that each question called for some type of personalized reaction from the child, linking the child's experience, feelings, or ideas directly or indirectly to the lesson content. The clearest subclass of episodic questions is that in which the child is asked to recount some personal experience ("How did you celebrate Thanksgiving?"). A second type of episodic question is one that asks the child to express his feelings or evaluate something suggested by the lesson content ("How would you feel if the king said you must only go to his church?") or the lesson itself ("Did you like that story?"). Also included in this second subcategory of episodic questions were those that asked a child to explain or give reasons for his feeling or evaluation ("Why would that have been a bad thing to do?"). A third type of episodic question asked the child to put himself in a situation presented in the lesson and describe how he would react. The child might be asked to draw inferences from information given in the story as a basis for his response ("If you had built a house then, what do you suppose it would look like?"); or the question might invite the child to a freer use of imagination ("If you had lived in those times, what would you have done for fun?"). A final type of question that was coded as episodic called upon the child's general knowledge as suggested by some lesson idea or information. (Examples: "What do we use to build houses today?"; "What happens when a person gets seasick?"; "Raymond, do you know what a fever is?").

Table 1 gives the results of the coding of typescripts for types of teacher questions. As the means indicate, there were very marked differ-

ences in teacher questioning between the semantic and episodic lessons. Usually over 90 percent of a teacher's questions were appropriate to the semantic condition. And six of the eight teachers succeeded in asking over 90 percent episodic questions in the episodic lesson. Some teachers asked some semantic questions during the episodic lesson. This tendency was quite marked for one teacher (teacher 4) who asked 37.8 percent semantic questions in the episodic lesson.

As the standard deviations suggest, not only was there extreme variance among the teachers in the number of questions asked in each category within each lesson, but the distributions were skewed. The skewed distributions are best described with reference to the total number of questions asked by the teachers in each type of lesson. In each lesson type, two or three teachers stand out as "high question producers"--they seemed to be able to generate a much larger number of questions per lesson than the other six teachers. In the semantic condition teachers 4 and 5 asked 90 and 160 questions respectively, while the remaining six teachers clustered within the 24-76 range. In the episodic condition teacher 5 continued to be by far the most fluent question-asker with 201 questions, while teacher 1 asked 100 questions and teacher 4 asked 82 questions.

Though it might appear that the episodic condition facilitated the production of teacher questions, applying Wilcoxon's matched-pairs, signed-ranks test to the difference in frequencies did not yield a T-value that reached significance at the .05 level. The percentage increases for those teachers who did increase the frequency of questions in the episodic condition were notably larger (range: 32 to 66 percent

Table 1

Frequency of Teacher Questions

	Semantic Lesson			Episodic Lesson		
Teacher	No. Semantic Questions	No. Episodic Questions	Total No. Questions	No. Semantic Questions	No. Episodic Questions	Total No. Questions
1	59 (84.4%)	7 (10.6%)	66	4 (4.0%)	96 (96.0%)	100
2	27 (100%)	0	27	5 (12.2%)	36 (87.8%)	41
3	59 (84.3%)	11 (15.7%)	70	0	60 (100%)	60
4	90 (100%)	0	90	31 (37.8%)	51 (62.2%)	82
5	159 (99.4%)	1 (0.6%)	160	2 (1.0%)	199 (99%)	201
6	54 (100%)	0	54	1 (1.5%)	67 (98.5%)	68
7	70 (92.1%)	6 (7.9%)	76	0	58 (100%)	58
8	31 (96.9%)	1 (3.1%)	32	1 (1.9%)	52 (98.1%)	53
Mean	68.6	3.25	Mean 71.9	9.38	80.25	Mean 82.88
S.D.	41.7	4.2	S.D. 41.5	6.62	51.78	S.D. 51.07

increase) than were the percentage decreases for those teachers who asked fewer questions in the episodic condition (range: 9 to 21 percent decrease).

Pupil Responses to Teacher Questions--Content and Frequency

The typescripts of the lessons were also coded for pupil response types to determine the extent to which children responded to their teachers' questions semantically or episodically. Five categories of pupil response were used in accordance with the definitions of semantic and episodic teacher questions (pp. 13-14). If a child's response represented a reporting of facts, meanings, or relationships from the story that had been read to the group, it was coded as semantic. The remaining four categories were coded as the principal types of episodic responses, as follows: personal experience (X), telling about something the child himself has experienced; feeling or evaluation (E), an expression of the pupil's liking for or evaluative judgment of a particular event or idea; inference (I), a statement of what the child thinks he would do under certain circumstances or how a problem might be solved; and general knowledge (G), an assertion of general fact from sources other than the lesson itself. Table 2 summarizes the results, indicating the frequencies and percentages of pupil responses falling in the semantic category and the several subcategories of episodic questions.

Comparison of the teacher totals in Table 2 with the totals in Table 1 demonstrates the high congruence of pupil responding with teacher questioning under each condition. But the frequencies within the subcategories in the episodic lessons reveal a considerable degree

Table 2

Frequencies of Pupil Responses

Teacher	Semantic Lesson						Episodic Lesson					
	Semantic Responses	Episodic Responses				Total	Semantic Responses	Episodic Responses				Total
		X	E	I	G			X	E	I	G	
1	163 82.3%	4 2%	14 7.1%	17 8.6%	0	198	15 4%	123 23.2%	111 29.9%	86 18.3%	36 9.7%	371
2	45 100%	0	0	0	0	45	1 2%	13 26%	15 30%	15 30%	6 12%	50
3	133 90.5%	10 6.8%	2 1.4%	2 1.4%	0	147	0	63 58.9%	4 3.7%	17 15.9%	23 21.5%	107
4	255 95.5%	9 3.4%	0	3 1.1%	0	267	65 33%	54 27.4%	13 6.6%	26 13.2%	39 19.8%	197
5	314 95.2%	0	3 0.9%	0	13 3.9%	330	1 0.2%	251 54.6%	80 17.4%	40 8.7%	88 19.1%	460
6	87 86.1%	0	0	11 10.9%	3 3%	101	4 3.1%	92 70.8%	13 10%	18 13.9%	3 2.3%	130
7	138 87.3%	4 2.5%	6 3.8%	5 3.2%	5 3.2%	158	1 0.8%	7 5.2%	8 6%	118 88%	0	134
8	43 100%	0	0	0	0	43	1 1.3%	34 45.3%	12 16%	20 26.7%	8 10.7%	75
Mean Percent	92.1	1.8	1.6	3.2	1.3		5.6	38.9	15.0	26.8	11.9	

KEY: X: Personal experience
E: Feeling and evaluation
I: Inference
G: General knowledge

of idiosyncracy among the teachers in the types of pupil responses they elicited. While generally the most common responses were "Experience" responses (expressions of personal experiences), one teacher elicited only 5.2 percent of all pupil responses in that subcategory, while concentrating 88 percent of pupil responses in the "Inference" category. (Inspection of that teacher's typescript has amply revealed the treatment of the lesson as more of a "problem-solving" lesson than a strictly pupil-experience-centered lesson.) Teacher 4 apparently found it difficult to depart from a strictly semantic type of lesson. While most of that teacher's questions were episodic, 37.8 percent of the questions (33 percent of pupil responses) were semantic. In general, the distinctive patterning of pupil responses seems to reveal that each teacher had quite a different facility in carrying out the episodic condition.

The extremely large variance across teachers in the sheer frequency of pupil responses elicited should be noted. In the semantic lesson the range was from 43 pupil responses in a lesson to 330. In the episodic lesson the range was from 50 to 460. In other words, some teachers appeared to be able to elicit almost ten times as many pupil responses within a lesson over the same content as others. As in many other studies of teacher behavior and pupil responses (e.g. Lynch & Ames, 1972), large teacher variability was evident in this study.

Language Production

The experimenters hypothesized that more pupil verbalization might be elicited in the episodic lesson than in the semantic lesson. Three measures of pupil verbal output were used: number of words uttered by the children during a lesson, the number of speech episodes, and the mean length of utterance. On all three measures the output was greater in the episodic condition. The number of words spoken in the episodic condition did not significantly exceed the number spoken in the recall condition ($t = 1.6$, $df = 7$, $p < .10$). However, the mean length of utterance measure did reach significance ($t = 1.9$, $df = 7$, $p < .05$). The measure involving the number of speech episodes was not significant. These results suggest that children did not speak more often on the average, but that when they did speak, their language productivity within each speech episode was greater.

The distribution of speech episodes across pupils in a group tends to be very uneven for most teachers--some children are talking much more frequently than others.

Table 3 summarizes the variations between teachers and across lessons in the ranges of response opportunities occurring. To interpret the percentages, the reader may find it helpful to keep in mind that a hypothetical teacher who provided exactly the same number of response opportunities to a group of eight children would have each child responding 12.5 percent of the time. Teacher 4, during the episodic lesson, had the most uneven distribution of pupil responses--one child was contributing 52.8 percent of all responses while the lowest responding child only participated 1.5 percent of the time. Teacher 8 in the

Table 3

Distribution of Pupil Response Opportunities

Teacher		Semantic Lesson		Episodic Lesson	
		Frequency	Percent of Total	Frequency	Percent of Total
1	High Pupil	57	25.8	106	28.6
	Low Pupil	6	2.7	7	1.9
	Class Total	221		371	
2	High Pupil	14	31.1	10	20.0
	Low Pupil	2	4.4	3	6.0
	Class Total	45		50	
3	High Pupil	44	29.9	22	20.6
	Low Pupil	4	2.7	7	6.5
	Class Total	147		107	
4	High Pupil	98	36.7	104	52.8
	Low Pupil	10	3.7	3	1.5
	Class Total	267		197	
5	High Pupil	122	37.0	146	31.7
	Low Pupil	9	2.7	21	4.6
	Class Total	330		460	
6	High Pupil	44	43.6	41	31.5
	Low Pupil	0	0	3	2.3
	Class Total	101		130	
7	High Pupil	34	21.5	43	32.1
	Low Pupil	0	0	0	0
	Class Total	158		134	
8	High Pupil	9	20.9	19	25.3
	Low Pupil	2	4.7	4	5.3
	Class Total	43		75	

semantic condition has the most even distribution of response opportunities (20.9 percent to 4.7 percent).

Even the variations in opportunities for language production are more evident when the raw frequencies are examined. Teacher 5 in the episodic condition had one child giving 146 responses. Teacher 5's lowest responder gave 21 responses--a higher frequency than teacher 8's highest responder in the episodic lesson.

It might be supposed that the ego-involving aspect of the episodic condition might mitigate the tendency of some members of a group to respond much more often than others, but this does not appear to be the case. Spearman rhos were computed on the rank order of the frequencies of responding for each child for the two lessons. All were positive, ranging from .45 to .93. Five were significant at the .05 level (for n=8, a rho of .64 is significant at the .05 level). Three rhos were above .90.

Feedback

Another general hypothesis involved the assumption that a larger number of opportunities for children to respond appropriately to a teacher's questions in the episodic questioning condition would mean that the teacher could use more positive feedback, a consequence that could improve a child's learning self-concept. Positive feedback was defined as the method the teacher used to consistently convey his/her pleasure with and approval of a particular child's correct response. Lesson markers such as a perfunctory "O.K." or "now," and so forth,

which occurred after a response, but may not have conveyed correctness or approval, were not considered. Neither were teacher repetitions of pupil responses considered as positive feedback.

The results do not support the initial hypothesis. On the contrary, the teachers gave significantly more positive feedback to children who responded appropriately in the recall condition than they did to children who responded appropriately in the episodic condition ($F = 6.17$, $df = 1, 7$, $p < .05$).

There are at least two possible interpretations of these results. The first is that teachers may provide feedback as a function of the extrinsic motivational quality of the situation, i.e., children need more encouragement in the form of teacher approval in the usual classroom structure, which depends heavily on the success of children's responding. Thus, the teachers felt less need for such encouragement in the episodic session since the success of a child's response was more certain and the situation was less threatening. This relationship may also have led to less positive feedback (and also lower posttest scores) under the episodic condition.

An equally plausible interpretation might be that since teachers have little experience with episodic questioning techniques and since virtually no training time was allowed for the teachers and no practice sessions were offered, a teacher had not adequately mastered the technique so that s/he could sustain his/her usual patterns of reinforcement during the lesson. Perhaps a program which contained such episodic sessions on a long-term basis might yield different results.

One question arising from these findings is whether a relationship

might exist between positive feedback and posttest scores. Learning theorists have suggested bases for expecting such a result. Results do indicate that positive feedback was positively related to posttest score when a chi square test combining the probabilities associated with each Pearson product moment correlation coefficient obtained for all eight teachers was applied. (Recall, $\chi^2 = 42.04$, $p < .001$; Episodic, $\chi^2 = 39.56$, $p < .001$).

Teacher-Student Interaction

A third topical concern of this study was the quantity and quality of the teacher-child interactions during a lesson. Three variables seem pertinent: teacher use of probes, teacher recognition of potential student respondents, and student participation. None of these variables are entirely separate from the general statement of the hypotheses presented earlier in support of the importance of language production, ego involvement, and student achievement, but the concern with interaction data does allow more focus on the aspects of a teacher's behavior which induce particular kinds of student responding.

Probing. Probing was defined for this study as any occasion in which a teacher asked one child at least two logically related questions in succession and allowed the child to respond between questions.

Ordinary recall questioning procedures give few opportunities for the teacher to continue a line of questioning with one particular child since she would presumably be concerned with the correctness of the response to her questions rather than an elaboration of a particular student

response. It was hypothesized that the episodic question condition would be more likely to elicit probing strategies from the teachers than the simple recall question condition. Results confirmed this hypothesis ($t = 6.2$, $df = 7$, $p < .001$).

The question of how the teacher selects the children to probe may be basic to an understanding of the probing phenomenon. It would be expected, for instance, that the high achieving children, as ranked by the posttest score, would be more likely to have interacted with the teacher in a probing situation. The relation between probes and posttest score is positive and significant for both conditions. (Recall, $\chi^2 = 36.33$, $p < .01$).

Another powerful factor which seems to affect how teachers in this study selected the particular children they probed seems to be the degree to which a child is initiating his own responses. The relationship between the pupils whose answers a teacher probes and the pupils who initiate responses to teacher questions is positive and significant for both treatment groups (Recall, $\chi^2 = 45.80$, $p < .001$; Episodic, $\chi^2 = 47.96$, $p < .001$). It might be inferred from these data that children who speak out the most are also the ones that will do the best on the posttest; however, correlations between student-initiated responding and posttest scores do not reach significance.

Teacher recognition of student respondents. Teachers use at least two distinct methods of addressing a class with a question. They can either ask the group as a whole, being careful not to choose any particular child by calling his name or pointing to him, or they can interact with a specific child. If the group is addressed, children may either

respond spontaneously or raise their hands. If a teacher fails to get any response from the group, s/he may do one of several things: rephrase the question, ask another question, or call on a particular child who has not identified himself as a willing respondent. The situation in which a teacher must single out an unresponsive child is similar to the situation in which the teacher elects to interact with a particular child and calls his name immediately before or after posing a question. In both cases the teacher nominates a child of his/her choice. Teacher selection has several advantages. It can allow individualization of instruction by emphasizing concepts with which particular children are having difficulty, give more children an opportunity to respond (since some may be reticent due to uncertainty or shyness), and help to eliminate the persistent responders. One additional benefit is that this tactic allows the teacher to maintain control over the behavior of some children who might otherwise be involved in activities not pertinent to the lesson. Unfortunately, the primary disadvantage of teacher selection of respondent is that the child may not know the answer and experience failure. As a result, the child's uncertainty may increase and even generalize to the responses he is relatively certain about (this would be especially unfortunate for the child who rarely responds correctly, e.g., an EMR child).

An hypothesis of this study was that there would be more children willing to raise their hands or respond on their own initiative in the episodic questioning session. This would have the effect of diminishing the need for a teacher to single out a child who might otherwise be unwilling to respond. The data indicate that while student-initiated

participation was significantly greater in the episodic condition ($t = 2.6$, $df = 7$, $p < .05$), the frequency of hand raising was significantly lower ($t = 2.4$, $df = 7$, $p < .05$).

Another hypothesis concerned the correctness of childrens' responses. More specifically, the experimenters believed that the appropriateness of childrens' responses would increase in the episodic condition if the teacher elected to call on a child who had not volunteered verbally or nonverbally. Pupil responses were scored "appropriate" or "inappropriate" according to criteria derived from the logic of the two lesson types. There were significantly more "appropriate" pupil responses in the episodic lessons. ($t = 2.5$, $df = 7$, $p < .05$).

Assuming that a teacher in the episodic condition has a situation where s/he can capitalize on the advantages of choosing to interact with a particular child (since s/he can be more certain of an appropriate response), will that teacher then begin directing his/her questions to specific children instead of asking group questions? This does, in fact, happen. Teachers called on significantly more children who had not raised their hands or initiated a response on their own in the episodic situation than in the recall situation ($t = 2.4$, $df = 7$, $p < .05$). These data might be interpreted to mean that teachers felt the procedure they were using was so unusual that the child might be confused about what behavior was expected of him. Therefore, teachers may have felt compelled to direct their questions to more individuals. However, the fact that children initiated more responses in the episodic condition tends to refute this interpretation.

Recall Test Results

Table 4 gives the means and standard deviations for the individual scores on the criterion tests for the two different "stories" under the semantic, episodic, and control conditions. As pointed out (p. 9), the analysis showed no significant effects of story or order. By pooling the results on the two stories, there is a significant difference in favor of the semantic condition ($p < .01$), using an analysis of variance with repeated measures design.

The control group performed significantly lower on the test for the "Colonial Times" story than did the other groups ($p < .05$). On the test on the "Mayflower" story, the control group performed significantly lower than the semantic group, ($p < .05$) but there was no significant difference between the control group and the episodic group on that particular posttest.

In general, it appears that opportunities to learn presented material for recall are best in the semantic condition. Grounds for interpreting the differences between the control and episodic groups are unclear. In any case, it would appear that the episodic lesson condition does have a facilitating effect on learning for recall, as compared with simply hearing the story without any teacher pupil interaction immediately before being tested.

Table 4

Recall Test Scores

	Colonial Times Test			Mayflower Test		
	Control	Semantic	Episodic	Control	Semantic	Episodic
Mean	8.59	12.06	11.44	9.38	12.06	9.75
S.D.	3.46	4.82	3.94	4.31	4.86	5.33
N	16	32	32	16	32	32

Conclusions and Implications

Within the limitations imposed by the conditions of this experiment--a small sample of teachers, the relatively small sample of their instructional interactions, the great variability of teaching styles, and the restriction of outcome measures to immediate recall tests--the following conclusions seemed warranted:

1. Teachers can shift between predominantly semantic and episodic styles of instructional interaction with considerable facility.

2. The responses of EMR pupils shift easily and appropriately from one type of questioning style to another.

3. Individual pupil verbal output is greater under episodic questioning.

4. Teachers provide more positive verbal feedback to pupils when teaching in the semantic model.

5. Teacher probing of pupil responses is more likely to occur in the episodic mode.

6. Self-initiated pupil responding is greater in the episodic mode.

7. Teachers call on more non-volunteering children in the episodic mode.

8. Episodic teaching, compared with semantic teaching, may reduce slightly the opportunities to learn specific factual material for subsequent recall. But, when compared with no instructional interaction at all (the control condition), episodic teaching has a facilitating effect on the recall of new information. There is no reason to believe that

teachers could not obtain the benefits of episodic teaching while also maintaining those opportunities for content learning that are provided by strictly semantic teaching.

The findings of this study should encourage researchers to further investigate the effects of instructional tactics that encourage children to talk about their own experiences, ideas, and feelings. Too much of the educational research and theoretical literature has been dominated by a small number of restrictive conceptual frameworks--particularly the conventional "higher-level vs. lower-level" distinction--to the neglect of the meaning and motivational dimensions of the content of instructional dialogue.

While the present study has too many limitations to justify extensive generalizing, it has encouraged these investigators and others at the Center for Innovation in Teaching the Handicapped to take some further steps in research and development. First-version instructional materials are being developed that will incorporate some of the rationale and tactics to suggest to teachers some benefits of personalized styles of questioning. The typescripts of the lessons from this study provide rich sources of protocols for illustrating very specific interaction tactics that give useful, heuristic examples for practicing teachers. Further efforts will be made to obtain evidence on how teachers might encourage handicapped children to fuller, more meaningful participation in class discussions and other cognitively oriented classroom activities.

References

Anderson, R. C. How to construct achievement tests to assess comprehension, Review of Educational Research, 42, 145-170, 1972.

Borg, W. R., Kelley, M. L., Langer, P., & Gall, M. The minicourse: A micro teaching approach to teacher education. Beverly Hills, Calif.: Macmillan Educational Services, 1970.

Lynch, W. W., & Ames, C. I. A comparison of teachers' cognitive demands in special EMR and regular elementary classes. Final Report 28.3, Bloomington, Ind.: Center for Innovation in Teaching the Handicapped, 1972.

Hunkins, F. P. Questioning Strategies and Techniques. Allyn and Bacon: Boston, 1972.

Rosenshine, B. New directives for research on teaching, How Teachers Make a Difference. U. S. Office of Education, Bureau of Educational Personnel Development. Washington, D. C.: U. S. Printing Office, 1971.

Taba, H., & Elzey, F. F. Teaching strategies and thought processes, Teachers College Record. March, 1964, pp. 524-534.

Tulving, E. Episodic and semantic memory, Chapter 10 in Tulving, E. and Donaldson, W. (Eds.), The Organization of Memory, New York: Academic Press, 1972.

Appendix A

Mayflower and Colonial Times Stories

If You Sailed on the Mayflower

Unit I

England is a small country far across the ocean. Kings ruled England many years ago, and the people there had to obey the king and the rules of his church. Some Englishmen wanted to have their own churches, so they had to meet secretly. But the king found out. He put some of the men in prison. So they decided they would have to leave England and their homes. They wanted to go to the New World where they could run their own churches. That was a long trip from England over here to America, so now we call these people Pilgrims. A pilgrim is someone who goes on a long, long journey.

The Pilgrims needed a ship for their journey, but they didn't have much money. They made an agreement with some businessmen in England to get a ship. The Pilgrims would work for the businessmen for seven years once they got to the New World, and in exchange, the businessmen would give them supplies and a ship to use. The ship's name was the Mayflower.

The Mayflower was a sailing ship. The wind filled its sails and pushed it across the water. It was about as long as two big trailer trucks. The Pilgrims sailed to the New World on the Mayflower, but the ship was not really made to carry people. It was built to carry cargo. Cargo means things people use like cloth, hats, and barrels of wine. Wine leaked out of some barrels on the ship. This wine covered up the smell of the ship's garbage.

When the Mayflower left England, it carried 30 sailors and 100

passengers. Before the ship reached the New World, there was a new passenger on board. A baby boy was born as the Mayflower sailed across the Atlantic Ocean. Guess what his parents named him: Oceanus!

All of the people on the ship were not friends. The sailors didn't like the Pilgrims. They made fun of the Pilgrims when they got seasick. They disliked their prayers and holy songs. The Pilgrims didn't like the sailors' bad language either.

The Pilgrims could not bring very much with them on the ship. Each family brought a Bible in a Bible box. They only had one chest for everything else. Women brought only clothes and things they needed for cooking. Men took just guns and swords to protect themselves and tools for building houses. The children had to leave all their toys behind. For each family, everything but the Bible had to fit in one chest. That meant the Pilgrims could take only what they needed.

Insert questions here

Unit II

As they sailed on, day after day, the families ate the same kind of food. The two most common things to eat were salted meat and hard biscuits. When the weather was good, the Pilgrims could build charcoal fires in metal boxes to cook their food. Most of the time, though, the weather was too stormy for building fires on the ship, and then the Pilgrims had to eat their food cold.

On board ship there were barrels of beer and barrels of water to drink. After standing in barrels for a while, the water was no longer safe to drink. Then everyone drank beer--even the children.

Most Pilgrims slept in the bottom of the ship. The bottom part inside a ship is called the hold. There was very little light or air down there in the hold. The sailors liked to sleep outside in the fresh air.

While they were on the Mayflower, the Pilgrims were not able to wash as usual, because there were no bathrooms. They could only wash themselves with salty water from the ocean they were sailing on. The journey took 66 days. So for 66 days the Pilgrims' clothes were not washed at all. Many people became sick as the ship sailed on and on. Now even the sailors prayed for the end of the terrible voyage.

The ship might never have made it to this great land if it weren't for a very watchful sailor. The Billington boys, who were always getting into trouble, set fire to a piece of rope. The rope was right next to two barrels of gunpowder. Just one spark in the gunpowder and boom! The end of our story and the end of the Pilgrims! Luckily, the watchful sailor stopped the boys and put out the fire.

Then at last the Pilgrims saw land again--a sandy beach. When the Pilgrims saw their ocean voyage was over, they were filled with joy and relief.

Soon after they arrived, the people began to quarrel and talk of splitting apart. The leaders knew that for their own safety the Pilgrims had to stay together. To keep the group together, the first set of laws in America was written by the men on the Mayflower. These laws were called the Mayflower Compact. The Mayflower Compact gave the Pilgrim men the right to vote, but women could not vote.

The Pilgrims didn't like the first place they stopped because there were too many Indians, so some of the men sailed off to find another spot. The place they landed was called Plymouth Rock and they made this place their new home.

Insert questions here

Unit III

In Plymouth there were no unfriendly Indians so right away the Pilgrims started building their town. In that first year, they could not build houses for everybody so some people had to live with other families in crowded houses. Living in a crowded house was better than living in no house at all though! It was a good thing that they could build some houses because the winter was very cold and many people got sick. About half of the people died during the first winter.

The houses that they built here looked a lot like their old houses in England, only they were smaller. They covered the roofs with a kind of straw material called thatch. There was no glass in Plymouth for the first year so they had to cover the windows with paper or cloth. Imagine trying to look through cloth windows! Most houses had only one room, and maybe a little room upstairs called a loft. So people had to eat, cook, and sleep in the same room.

Besides having houses to protect them, the Pilgrims also needed food to eat. But they couldn't go to the grocery store like we do today. They had to grow their own food. Luckily, some friendly Indians taught them about growing food in the New World. One of the Indians came to live with the Pilgrims. His name was Squanto. Squanto showed them where to fish and hunt. He told them how to grow corn by putting three fish in each hill of corn to make it grow.

With all of this work to do to start their new life, the Pilgrims stayed busy most of the time. Boys and girls in Plymouth had many chores and little time for just having fun. They shelled corn and cooked turkeys. Sometimes they made mattresses by putting pine needles or

feathers into linen bags. And in the summer, they looked for clams on the beach.

But no one was unhappy because he had to work so hard. They were thankful that they had made a new home away from the king of England. So they set aside a day of Thanksgiving to thank God for their good life.

Insert questions here

Colonial Times

Unit I

This story is about Colonial times. We use the name "Colonial times" for the times which came after Columbus discovered America, but before the United States became a separate country. During Colonial times America belonged to England, and the people of America had to obey the king of England. You may already know some things about Colonial times. Life then was quite different from life today.

In early Colonial times there were no grocery stores where people could buy food. The people had to grow their own. Some of the plants they grew and the animals they raised had been brought with them when they moved to America. Bean porridge was one meal they made using the kinds of food they brought over from England.

The Colonial people also hunted and fished for food. Meat for dinner might be bear or squirrel rather than hamburger, because hamburgers weren't invented yet.

There weren't many cows. Without cows, there was not much milk to drink. People didn't like to drink water either, because the water wasn't always safe. Instead, they drank fruit cider and beer. Children often had a glass of beer for breakfast!

From the Indians, the people of Colonial times learned about a new food--corn. Corn became one of the most important foods of the new settlers.

In the fall, everybody worked extra hard to get food ready for winter. During the winter the crops didn't grow, and the people had to

eat food they had stored up. They didn't have refrigerators or canned foods. To keep food from spoiling, they dried it or smoked it. To smoke food, the colonists hung meat in a small house that was closed up and had a fire built in it.

When children were at the dinner table, they had to follow all the rules in a book of manners. Children had to stand up while they ate. They were not allowed to talk, sing, hum, or wiggle. If the supper was good, they could not say so. If the supper was bad, they could not tell their parents that they didn't like it. "Speak not!" was the rule. Children were also told to eat in small bites, and not to make noises while they chewed.

The way Colonial people ate their food was not the same as the ways people use today. There were no forks in early Colonial days--just spoons. People used the same knife for cutting meat that they used to cut wood. They used wooden boards called trenchers as plates. Most children had to share their trencher with a sister or brother. It was good manners for a person to use his fingers whenever he wanted to. Sometimes the whole family took their food out of one big pot in the middle of the table.

Insert questions here

Unit II

Naturally, people became sick or got hurt sometimes. Back in those days there weren't very many doctors for those who were sick. To find a doctor, a neighbor might have to ride all day. When the doctor came, he would often bleed the sick person to make him well. "Bleeding" people meant opening a vein in their arms and letting some blood flow out.

People back then believed in witches, too. They thought that the spells cast by witches sometimes made people sick.

Whatever the cause was, if a child became sick, his mother worried about him and tried to make him feel better. She would make sure he was warm by moving his bed close to the fire. With doctors hard to find, she would often try using her own medicines.

A mother might use plants called herbs for medicines. Back then it was thought that herbs could cure almost any sickness. Settlers used herbs on problems ranging from upset stomachs to broken legs. Families grew their own herbs in their gardens, and made their own medicines themselves. Mothers would often mix the herbs with honey, to cover up their bitter taste.

Not all medicines were made from herbs, though. A tea made from ground-up roasted toads was thought to be good for sick people. Governor John Winthrop had his own recipe to cure fevers. He would cut a sick person's finger nails. Then he would put the finger nails in a bag, and hang it around an eel's neck. An eel is like a snake. The eel was put in a tub of water and when it died the sick person's fever was supposed to go away.

People in Colonial times had special medicines for babies, too. Babies feel bad when their first teeth are coming in. To make their babies feel better, some mothers gave them necklaces to wear. The necklaces were made out of dried berries or wolves' teeth.

Not all medicines were homemade either. Sometimes people bought medicines, but then they never knew exactly what they were getting. A thief might sell people medicines that were just water in a fancy bottle.

Insert questions here

Unit III

In Colonial times a watchman walked the streets. Sometimes he might take a lost cow home to its owner. Sometimes the watchman would be an alarm clock. If people had to get up early, they would ask the town watchman to wake them up.

The watchman also tried to make sure that people obeyed the laws. It was against the law to be out at night. When he saw someone out after dark, the watchman would ask, "What are you doing" Where are you going?" If the person could not give a good answer, the watchman would scold him and take him back home.

People in Colonial times had other laws. They had laws for every day of the week, but the laws for Sunday were the most important ones. On Sundays people couldn't do many of the things they usually did. A man couldn't cut his hair or shave. It was against the law for children to kiss their parents on Sunday.

Every family had to attend church on Sunday. Even babies had to go to church. Babies didn't have to sit up, though. They were put in playpens where they could lie down.

Church lasted for hours. During the service, a church official called the tithing man was on the lookout for people who fell asleep. The tithing man carried a pole. At one end of the long pole was a wooden knob. The tithing man would give children who fell asleep a knock on the head with the knob. On the other end of the long pole was a furry fox tail. The tithing man used the furry tail to tickle the noses of old men and women who fell asleep. The old men and women wore powdered wigs so a knock on the head would spread white powder everywhere.

Besides a knock wouldn't hurt a wig. Young boys had their own long hair and girls kept their hair covered with hats or kerchiefs.

Not all laws were just for Sundays, though. There were laws that said every man had to work on the town roads for a few days each month. Many people did not obey this law and that is why the roads were very bad. In one town there was a law that said every man had to shoot three crows or twelve blackbirds between the middle of March and the last day of June. This law was passed to save people's food because the blackbirds and crows ate corn and fruit. People in Colonial times had to work hard just to make sure they had enough food.

Insert questions here

Appendix B

Directions to Teachers

Directions for Semantic Lesson

Objective of the lesson: To teach the children the lesson by reading them one section at a time and asking them recall or fact questions at the end of each section.

Rules: Please don't write on the board because we are interested in the children's listening comprehension.

Before you begin, please ask the children to introduce themselves while looking at the camera.

If you feel during the course of the lesson that something must be explained, you may do so, but please don't ask questions about what you have explained. It would be better if you could stick closely to the content of the story and questions about it.

Only ask recall questions this time!

It might be a good idea to tell the children that we are trying to learn how to teach, so that they won't worry about their own performance.

Many, many, many thanks for your help.

Directions for Episodic Lesson

Objective of the lesson: To teach the children the lesson by reading them one section at a time and asking them questions which relate their own experiences to the content of the story.

These sample questions should give you an idea of the kind of questions we would like you to ask the group. They are much like the sort of questions you might ask if you were just reading them a story for pleasure. (You may use these if you need to or feel they are appropriate.)

1. Would you like to go to the king's church instead of the church your Mom and Dad go to?
2. Imagine not having a bathroom. What would you do?
3. Have you ever had wine?
4. Do any of you know a farmer? A shopkeeper?
5. What color are sailors' clothes nowadays?
6. If you could take only what you needed on a trip, which items would you take?

Please don't write on the board because we are interested in the children's listening comprehension.

It would probably be good to tell the children that we are trying to learn how to teach, so that they won't worry about their own performance.

Before you begin, please ask the children to introduce themselves.

Only ask experience questions this time!

Many, many thanks.

Appendix C

Posttests

Name _____

School _____

1. Why would the meat for dinner be bear or squirrel rather than hamburger?

2. People used the same knife for doing two things--one was cutting wood. What was the other?

3. What do we use to eat meat with today that the colonists didn't have?

4. What did the person with the pole in church do to the kiddies who were sleeping?

5. What is an eel like?

6. Why were the roads very bad?

7. When did this story take place?

8. Why did the Pilgrims put food out in the sun or in a house full of smoke?

9. What did the colonists think witches were able to do to people?

10. Who tried to make sure that people obeyed the laws?

11. How long did the Sunday morning service take?

12. What did the tithing man carry?

13. In which season did everybody work very hard to get things to eat ready for the cold weather?

14. What did mamas often put in the medicine to hide the awful taste?

15. Which new vegetable did the colonists find out about in the new land they moved to?

16. What did they use wooden boards, called trenchers, for?

17. What do you call opening a vein in a person's arm and letting some blood flow out?

18. Which food did the people cook that used the type of beans they carried over from their old country?

19. The people couldn't drink one thing because it wasn't always safe. What was it?

20. Who might sell the people medicine that was just water in a fancy bottle?

21. Who would sometimes be an alarm clock?

22. Where did everyone go on Sunday?

23. What was the plant called that was used on tummy aches and broken bones?

24. If the watchman asked, "What are you doing? Where are you going?", what time would it be?

Name _____

School _____

1. The Mayflower Compact gave the Pilgrim men the right to vote, but who could not vote?

2. Who did the men who sailed the ship feel unfriendly toward?

3. Where did the Pilgrims keep all their belongings?

4. What did the Pilgrims need to get from the businessmen which they couldn't afford?

5. Which people were able to sleep outside in the fresh air during the trip?

6. Who did the Pilgrims get their ship from?

7. What kind of material was used to cover the roofs of houses?

8. When the sea was not stormy, where did the people build their flames to heat supper?

9. How did the Mayflower get another person on board during the trip?

10. What dangerous thing was the burning rope right next to?

11. Why couldn't they see outside when they were in their homes?

12. What was no longer safe to drink after standing in barrels for a while?

13. What is the word for people who take very, very big trips?

14. What hid the odor of the boat's trash?

15. The fathers brought rifles and sabers to defend their families. What did they bring to use in making houses?

16. What did the king do with people who met secretly?

17. What did the boys and girls do with their playthings when they left England?

18. What type of ship was the Mayflower?

19. What thing in the story was about as long as two big trailer trucks?

20. What did they put into linen bags to make mattresses?

21. How long did the journey take?

22. Who knew that the Pilgrims had to stay together for their own safety?

23. Who showed the Pilgrims how to plant a garden in America?

24. What day did they set aside to thank God for their good life?